

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N
3N-67W-15 Merlin Pad
MERLIN STATE 9N-15HZ

Plan A

Plan: Permit Rev-1

Sperry Drilling Services Proposal Report

12 May, 2015

Well Coordinates: 14,609,495.55 N, 1,672,530.60 E (40° 13' 37.99" N, 104° 53' 05.81" W)
Ground Level: 4,798.00 usft

Local Coordinate Origin:	Centered on Well MERLIN STATE 9N-15HZ
Viewing Datum:	RKB = 17' @ 4815.00usft (D Rig)
TVDs to System:	N
North Reference:	True
Unit System:	Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

HALLIBURTON

Project: WELD-NAD83-UTMFT13N
Site: 3N-67W-15 Merlin Pad
Well: MERLIN STATE 9N-15HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

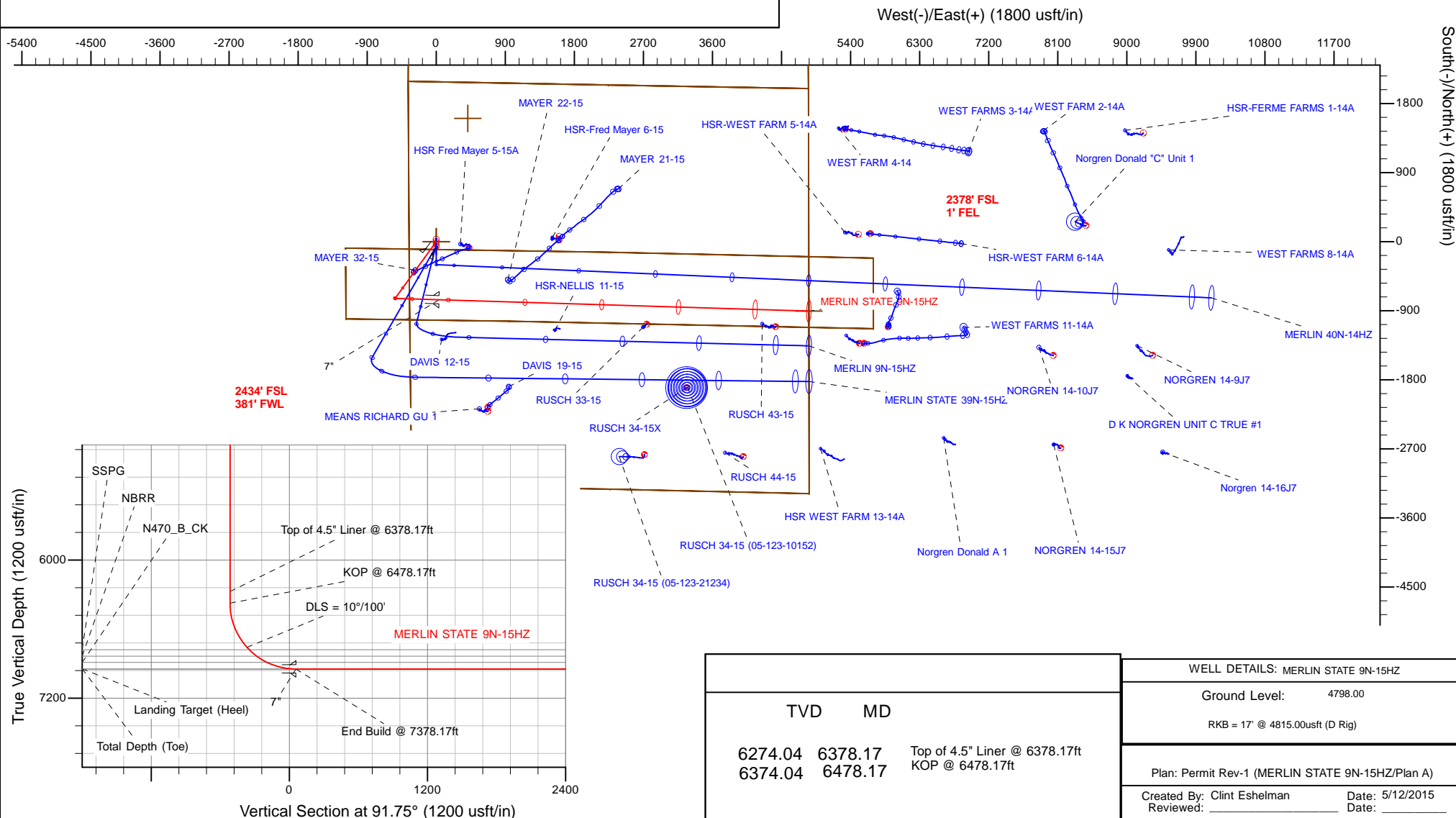
HALLIBURTON
Sperry Drilling

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	+N/-S	+E/-W	Dleg	TFace	VSec	Target
2	250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	
3	1183.33	14.00	216.00	1174.07	-91.79	-66.69	1.50	216.00	-63.86	
4	4143.33	14.00	216.00	4046.15	-671.12	-487.60	0.00	0.00	-466.88	
5	4843.33	0.00	0.00	4739.20	-739.97	-537.62	2.00	180.00	-514.77	
6	6478.17	0.00	0.00	6374.04	-739.97	-537.62	0.00	0.00	-514.77	
7	7378.17	90.00	91.75	6947.00	-757.50	35.07	10.00	91.75	58.19	
8	12200.30	90.00	91.75	6947.00	-905.10	4854.94	0.00	0.00	4880.32	MERLIN STATE 9N-15HZ_BHL

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Polygon
MERLIN 9C-15HZ_LD	0.00	0.00	0.00	40.227219	-104.884946	Polygon
MERLIN STATE 9N-15HZ_SHL	0.00	0.00	0.00	40.227219	-104.884946	Polygon
3N-R67W-Sec. 10 Section Lines	5.00	1604.47	410.28	40.231625	-104.883476	Polygon
3N-R67W-Sec. 15 Section Lines	5.00	1604.47	410.28	40.231625	-104.883476	Polygon
MERLIN STATE 9N-15HZ_BHL	6947.00	-905.10	4854.94	40.224732	-104.867553	Polygon



Plan Report for MERLIN STATE 9N-15HZ - Permit Rev-1

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MERLIN 9C-15HZ_LD - MERLIN STATE 9N-15HZ_SHL										
5.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3N-R67W-Sec. 15_Section Lines - 3N-R67W-Sec. 10_Section Lines										
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
250.00	0.00	0.00	250.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge @ 250.00ft										
300.00	0.75	216.00	300.00	-0.26	-0.19	-0.18	1.50	1.50	0.00	216.00
400.00	2.25	216.00	399.96	-2.38	-1.73	-1.66	1.50	1.50	0.00	0.00
497.17	3.71	216.00	497.00	-6.47	-4.70	-4.50	1.50	1.50	0.00	0.00
Base Fox Hills										
500.00	3.75	216.00	499.82	-6.62	-4.81	-4.60	1.50	1.50	0.00	0.00
600.00	5.25	216.00	599.51	-12.96	-9.42	-9.02	1.50	1.50	0.00	0.00
700.00	6.75	216.00	698.96	-21.42	-15.56	-14.90	1.50	1.50	0.00	0.00
749.42	7.49	216.00	748.00	-26.38	-19.16	-18.35	1.50	1.50	0.00	0.00
Surface Csg Setting Depth										
800.00	8.25	216.00	798.10	-31.98	-23.23	-22.25	1.50	1.50	0.00	0.00
900.00	9.75	216.00	896.87	-44.63	-32.43	-31.05	1.50	1.50	0.00	0.00
1,000.00	11.25	216.00	995.19	-59.38	-43.14	-41.31	1.50	1.50	0.00	0.00
1,100.00	12.75	216.00	1,093.00	-76.20	-55.36	-53.01	1.50	1.50	0.00	0.00
1,183.33	14.00	216.00	1,174.07	-91.79	-66.69	-63.86	1.50	1.50	0.00	0.00
End Nudge @ 1183.33ft										
1,200.00	14.00	216.00	1,190.25	-95.05	-69.06	-66.13	0.00	0.00	0.00	0.00
1,300.00	14.00	216.00	1,287.27	-114.63	-83.28	-79.74	0.00	0.00	0.00	0.00
1,400.00	14.00	216.00	1,384.30	-134.20	-97.50	-93.36	0.00	0.00	0.00	0.00
1,500.00	14.00	216.00	1,481.33	-153.77	-111.72	-106.97	0.00	0.00	0.00	0.00
1,600.00	14.00	216.00	1,578.36	-173.34	-125.94	-120.59	0.00	0.00	0.00	0.00
1,622.30	14.00	216.00	1,600.00	-177.71	-129.11	-123.62	0.00	0.00	0.00	0.00
9 5/8"										
1,700.00	14.00	216.00	1,675.39	-192.91	-140.16	-134.20	0.00	0.00	0.00	0.00
1,800.00	14.00	216.00	1,772.42	-212.49	-154.38	-147.82	0.00	0.00	0.00	0.00
1,900.00	14.00	216.00	1,869.45	-232.06	-168.60	-161.43	0.00	0.00	0.00	0.00
2,000.00	14.00	216.00	1,966.48	-251.63	-182.82	-175.05	0.00	0.00	0.00	0.00
2,100.00	14.00	216.00	2,063.51	-271.20	-197.04	-188.67	0.00	0.00	0.00	0.00
2,200.00	14.00	216.00	2,160.54	-290.77	-211.26	-202.28	0.00	0.00	0.00	0.00
2,300.00	14.00	216.00	2,257.57	-310.35	-225.48	-215.90	0.00	0.00	0.00	0.00
2,400.00	14.00	216.00	2,354.60	-329.92	-239.70	-229.51	0.00	0.00	0.00	0.00
2,500.00	14.00	216.00	2,451.63	-349.49	-253.92	-243.13	0.00	0.00	0.00	0.00
2,600.00	14.00	216.00	2,548.66	-369.06	-268.14	-256.74	0.00	0.00	0.00	0.00
2,700.00	14.00	216.00	2,645.69	-388.63	-282.36	-270.36	0.00	0.00	0.00	0.00
2,800.00	14.00	216.00	2,742.72	-408.20	-296.58	-283.97	0.00	0.00	0.00	0.00
2,900.00	14.00	216.00	2,839.75	-427.78	-310.80	-297.59	0.00	0.00	0.00	0.00
3,000.00	14.00	216.00	2,936.78	-447.35	-325.02	-311.20	0.00	0.00	0.00	0.00
3,100.00	14.00	216.00	3,033.81	-466.92	-339.24	-324.82	0.00	0.00	0.00	0.00
3,200.00	14.00	216.00	3,130.84	-486.49	-353.46	-338.44	0.00	0.00	0.00	0.00
3,300.00	14.00	216.00	3,227.87	-506.06	-367.68	-352.05	0.00	0.00	0.00	0.00
3,400.00	14.00	216.00	3,324.90	-525.64	-381.90	-365.67	0.00	0.00	0.00	0.00
3,500.00	14.00	216.00	3,421.93	-545.21	-396.12	-379.28	0.00	0.00	0.00	0.00
3,600.00	14.00	216.00	3,518.95	-564.78	-410.34	-392.90	0.00	0.00	0.00	0.00
3,660.85	14.00	216.00	3,578.00	-576.69	-418.99	-401.18	0.00	0.00	0.00	0.00
Parkman										
3,700.00	14.00	216.00	3,615.98	-584.35	-424.56	-406.51	0.00	0.00	0.00	0.00
3,800.00	14.00	216.00	3,713.01	-603.92	-438.78	-420.13	0.00	0.00	0.00	0.00
3,900.00	14.00	216.00	3,810.04	-623.50	-453.00	-433.74	0.00	0.00	0.00	0.00
4,000.00	14.00	216.00	3,907.07	-643.07	-467.22	-447.36	0.00	0.00	0.00	0.00
4,100.00	14.00	216.00	4,004.10	-662.64	-481.44	-460.98	0.00	0.00	0.00	0.00
4,113.29	14.00	216.00	4,017.00	-665.24	-483.33	-462.79	0.00	0.00	0.00	0.00

Plan Report for MERLIN STATE 9N-15HZ - Permit Rev-1

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
Sussex										
4,143.33	14.00	216.00	4,046.15	-671.12	-487.60	-466.87	0.00	0.00	0.00	0.00
Begin Drop @ 4143.33ft										
4,200.00	12.87	216.00	4,101.26	-681.77	-495.34	-474.28	2.00	-2.00	0.00	180.00
4,300.00	10.87	216.00	4,199.12	-698.41	-507.42	-485.86	2.00	-2.00	0.00	180.00
4,400.00	8.87	216.00	4,297.64	-712.27	-517.49	-495.50	2.00	-2.00	0.00	180.00
4,500.00	6.87	216.00	4,396.69	-723.34	-525.54	-503.20	2.00	-2.00	0.00	180.00
4,600.00	4.87	216.00	4,496.16	-731.61	-531.55	-508.96	2.00	-2.00	0.00	180.00
4,700.00	2.87	216.00	4,595.93	-737.06	-535.51	-512.75	2.00	-2.00	0.00	180.00
4,800.00	0.87	216.00	4,695.87	-739.70	-537.42	-514.58	2.00	-2.00	0.00	180.00
4,843.33	0.00	0.00	4,739.20	-739.97	-537.62	-514.77	2.00	-2.00	332.33	180.00
End Drop @ 4843.33ft										
4,900.00	0.00	0.00	4,795.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	180.00
5,000.00	0.00	0.00	4,895.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	4,995.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,095.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,195.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,295.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,395.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,495.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,595.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,695.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,795.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	5,895.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	5,995.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,095.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,195.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
6,378.17	0.00	0.00	6,274.04	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
Top of 4.5" Liner @ 6378.17ft										
6,400.00	0.00	0.00	6,295.87	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
6,478.17	0.00	0.00	6,374.04	-739.97	-537.62	-514.77	0.00	0.00	0.00	0.00
KOP @ 6478.17ft										
6,500.00	2.18	91.75	6,395.87	-739.98	-537.20	-514.35	10.00	10.00	0.00	91.75
6,600.00	12.18	91.75	6,494.95	-740.36	-524.72	-501.86	10.00	10.00	0.00	0.00
6,700.00	22.18	91.75	6,590.37	-741.26	-495.23	-472.36	10.00	10.00	0.00	0.00
6,800.00	32.18	91.75	6,679.21	-742.66	-449.62	-426.74	10.00	10.00	0.00	0.00
6,900.00	42.18	91.75	6,758.78	-744.51	-389.29	-366.38	10.00	10.00	0.00	0.00
DLS = 10°/100'										
6,927.91	44.97	91.75	6,779.00	-745.10	-370.07	-347.14	10.00	10.00	0.00	0.00
SSPG										
7,000.00	52.18	91.75	6,826.66	-746.75	-316.07	-293.12	10.00	10.00	0.00	0.00
7,013.81	53.56	91.75	6,835.00	-747.09	-305.06	-282.10	10.00	10.00	0.00	0.00
NBRR										
7,100.00	62.18	91.75	6,880.79	-749.32	-232.17	-209.18	10.00	10.00	0.00	0.00
7,118.14	64.00	91.75	6,889.00	-749.81	-216.01	-193.01	10.00	10.00	0.00	0.00
N470_B_CK										
7,200.00	72.18	91.75	6,919.52	-752.14	-140.16	-117.13	10.00	10.00	0.00	0.00
7,300.00	82.18	91.75	6,941.68	-755.12	-42.82	-19.74	10.00	10.00	0.00	0.00
7,378.17	90.00	91.75	6,947.00	-757.50	35.07	58.19	10.00	10.00	0.00	0.00
End Build @ 7378.17ft - Landing Target (Heel) - 7"										
7,400.00	90.00	91.75	6,947.00	-758.17	56.89	80.02	0.00	0.00	0.00	0.00
7,500.00	90.00	91.75	6,947.00	-761.23	156.84	180.02	0.00	0.00	0.00	0.00
7,600.00	90.00	91.75	6,947.00	-764.29	256.80	280.02	0.00	0.00	0.00	0.00
7,700.00	90.00	91.75	6,947.00	-767.35	356.75	380.02	0.00	0.00	0.00	0.00
7,800.00	90.00	91.75	6,947.00	-770.41	456.70	480.02	0.00	0.00	0.00	0.00
7,900.00	90.00	91.75	6,947.00	-773.47	556.66	580.02	0.00	0.00	0.00	0.00
8,000.00	90.00	91.75	6,947.00	-776.54	656.61	680.02	0.00	0.00	0.00	0.00
8,100.00	90.00	91.75	6,947.00	-779.60	756.56	780.02	0.00	0.00	0.00	0.00

Plan Report for MERLIN STATE 9N-15HZ - Permit Rev-1

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	Toolface Azimuth (°)
8,200.00	90.00	91.75	6,947.00	-782.66	856.51	880.02	0.00	0.00	0.00	0.00
8,300.00	90.00	91.75	6,947.00	-785.72	956.47	980.02	0.00	0.00	0.00	0.00
8,400.00	90.00	91.75	6,947.00	-788.78	1,056.42	1,080.02	0.00	0.00	0.00	0.00
8,500.00	90.00	91.75	6,947.00	-791.84	1,156.37	1,180.02	0.00	0.00	0.00	0.00
8,600.00	90.00	91.75	6,947.00	-794.90	1,256.33	1,280.02	0.00	0.00	0.00	0.00
8,700.00	90.00	91.75	6,947.00	-797.96	1,356.28	1,380.02	0.00	0.00	0.00	0.00
8,800.00	90.00	91.75	6,947.00	-801.02	1,456.23	1,480.02	0.00	0.00	0.00	0.00
8,900.00	90.00	91.75	6,947.00	-804.08	1,556.19	1,580.02	0.00	0.00	0.00	0.00
9,000.00	90.00	91.75	6,947.00	-807.14	1,656.14	1,680.02	0.00	0.00	0.00	0.00
9,100.00	90.00	91.75	6,947.00	-810.20	1,756.09	1,780.02	0.00	0.00	0.00	0.00
9,200.00	90.00	91.75	6,947.00	-813.27	1,856.05	1,880.02	0.00	0.00	0.00	0.00
9,300.00	90.00	91.75	6,947.00	-816.33	1,956.00	1,980.02	0.00	0.00	0.00	0.00
9,400.00	90.00	91.75	6,947.00	-819.39	2,055.95	2,080.02	0.00	0.00	0.00	0.00
9,500.00	90.00	91.75	6,947.00	-822.45	2,155.91	2,180.02	0.00	0.00	0.00	0.00
9,600.00	90.00	91.75	6,947.00	-825.51	2,255.86	2,280.02	0.00	0.00	0.00	0.00
9,700.00	90.00	91.75	6,947.00	-828.57	2,355.81	2,380.02	0.00	0.00	0.00	0.00
9,800.00	90.00	91.75	6,947.00	-831.63	2,455.77	2,480.02	0.00	0.00	0.00	0.00
9,900.00	90.00	91.75	6,947.00	-834.69	2,555.72	2,580.02	0.00	0.00	0.00	0.00
10,000.00	90.00	91.75	6,947.00	-837.75	2,655.67	2,680.02	0.00	0.00	0.00	0.00
10,100.00	90.00	91.75	6,947.00	-840.81	2,755.62	2,780.02	0.00	0.00	0.00	0.00
10,200.00	90.00	91.75	6,947.00	-843.87	2,855.58	2,880.02	0.00	0.00	0.00	0.00
10,300.00	90.00	91.75	6,947.00	-846.93	2,955.53	2,980.02	0.00	0.00	0.00	0.00
10,400.00	90.00	91.75	6,947.00	-850.00	3,055.48	3,080.02	0.00	0.00	0.00	0.00
10,500.00	90.00	91.75	6,947.00	-853.06	3,155.44	3,180.02	0.00	0.00	0.00	0.00
10,600.00	90.00	91.75	6,947.00	-856.12	3,255.39	3,280.02	0.00	0.00	0.00	0.00
10,700.00	90.00	91.75	6,947.00	-859.18	3,355.34	3,380.02	0.00	0.00	0.00	0.00
10,800.00	90.00	91.75	6,947.00	-862.24	3,455.30	3,480.02	0.00	0.00	0.00	0.00
10,900.00	90.00	91.75	6,947.00	-865.30	3,555.25	3,580.02	0.00	0.00	0.00	0.00
11,000.00	90.00	91.75	6,947.00	-868.36	3,655.20	3,680.02	0.00	0.00	0.00	0.00
11,100.00	90.00	91.75	6,947.00	-871.42	3,755.16	3,780.02	0.00	0.00	0.00	0.00
11,200.00	90.00	91.75	6,947.00	-874.48	3,855.11	3,880.02	0.00	0.00	0.00	0.00
11,300.00	90.00	91.75	6,947.00	-877.54	3,955.06	3,980.02	0.00	0.00	0.00	0.00
11,400.00	90.00	91.75	6,947.00	-880.60	4,055.02	4,080.02	0.00	0.00	0.00	0.00
11,500.00	90.00	91.75	6,947.00	-883.66	4,154.97	4,180.02	0.00	0.00	0.00	0.00
11,600.00	90.00	91.75	6,947.00	-886.73	4,254.92	4,280.02	0.00	0.00	0.00	0.00
11,700.00	90.00	91.75	6,947.00	-889.79	4,354.87	4,380.02	0.00	0.00	0.00	0.00
11,800.00	90.00	91.75	6,947.00	-892.85	4,454.83	4,480.02	0.00	0.00	0.00	0.00
11,900.00	90.00	91.75	6,947.00	-895.91	4,554.78	4,580.02	0.00	0.00	0.00	0.00
12,000.00	90.00	91.75	6,947.00	-898.97	4,654.73	4,680.02	0.00	0.00	0.00	0.00
12,100.00	90.00	91.75	6,947.00	-902.03	4,754.69	4,780.02	0.00	0.00	0.00	0.00
12,200.00	90.00	91.75	6,947.00	-905.09	4,854.64	4,880.02	0.00	0.00	0.00	0.00
12,200.29	90.00	91.75	6,947.00	-905.10	4,854.93	4,880.31	0.00	0.00	0.00	0.00
Total Depth (Toe)										
12,200.30	90.00	91.75	6,947.00	-905.10	4,854.94	4,880.32	0.00	0.00	0.00	0.00
TD Well @ 12200.30ft - MERLIN STATE 9N-15HZ_BHL										

Plan Report for MERLIN STATE 9N-15HZ - Permit Rev-1

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
250.00	250.00	0.00	0.00	Begin Nudge @ 250.00ft
1,183.33	1,174.07	-91.79	-66.69	End Nudge @ 1183.33ft
4,143.33	4,046.15	-671.12	-487.60	Begin Drop @ 4143.33ft
4,843.33	4,739.20	-739.97	-537.62	End Drop @ 4843.33ft
6,378.17	6,274.04	-739.97	-537.62	Top of 4.5" Liner @ 6378.17ft
6,478.17	6,374.04	-739.97	-537.62	KOP @ 6478.17ft
6,900.00	6,758.78	-744.51	-389.29	DLS = 10°/100'
7,378.17	6,947.00	-757.50	35.07	End Build @ 7378.17ft
12,200.30	6,947.00	-905.10	4,854.94	TD Well @ 12200.30ft

Vertical Section Information

Angle Type	Target	Azimuth (°)	Origin Type	Origin		Start TVD (usft)
				+N/_S (usft)	+E/-W (usft)	
User	No Target (Freehand)	91.75	Slot	0.00	0.00	0.00

Survey tool program

From (usft)	To (usft)	Survey/Plan	Survey Tool
0.00	7,378.17	Permit Rev-1	APC_ISCWSA REV 2 MWD+IFR1
7,378.17	12,200.30	Permit Rev-1	APC_ISCWSA REV 2 MWD+IFR1

Casing Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,622.30	1,600.00	9 5/8"	9-5/8	13-1/2
7,378.17	6,947.00	7"	7	8-3/4

Formation Details

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
497.17	497.00	Base Fox Hills		0.00	
749.42	748.00	Surface Csg Setting Depth		0.00	
3,660.85	3,578.00	Parkman		0.00	
4,113.29	4,017.00	Sussex		0.00	
6,927.91	6,779.00	SSPG		0.00	
7,013.81	6,835.00	NBRR		0.00	
7,118.14	6,889.00	N470_B_CK		0.00	
7,378.17	6,947.00	Landing Target (Heel)		0.00	
12,200.29	6,947.00	Total Depth (Toe)		0.00	

Plan Report for MERLIN STATE 9N-15HZ - Permit Rev-1

Targets associated with this wellbore

Target Name	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Shape
MERLIN STATE 9N-15HZ_BHL	6,947.00	-905.10	4,854.94	Point
MERLIN 9C-15HZ_LD	0.00	0.00	0.00	Polygon
3N-R67W-Sec. 15_Section Lines	5.00	1,604.47	410.28	Polygon
MERLIN STATE 9N-15HZ_SHL	0.00	0.00	0.00	Point
3N-R67W-Sec. 10_Section Lines	5.00	1,604.47	410.28	Polygon

North Reference Sheet for 3N-67W-15 Merlin Pad - MERLIN STATE 9N-15HZ - Plan**A**

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.

Vertical Depths are relative to RKB = 17' @ 4815.00usft (D Rig). Northing and Easting are relative to MERLIN STATE 9N-15HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.00°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960118

Grid Coordinates of Well: 14,609,495.55 usft N, 1,672,530.60 usft E

Geographical Coordinates of Well: 40° 13' 37.99" N, 104° 53' 05.81" W

Grid Convergence at Surface is: 0.07°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,200.30usft
the Bottom Hole Displacement is 4,938.59usft in the Direction of 100.56° (True).

Magnetic Convergence at surface is: -8.37° (22 December 2014, , IGRF2010)

